

Atmos. Chem. Phys. Discuss., referee comment RC2
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Comment on acp-2021-252

Luis Antonio Ladino (Referee)

Referee comment on "Heterogeneous ice nucleation ability of aerosol particles generated from Arctic sea surface microlayer and surface seawater samples at cirrus temperatures" by Robert Wagner et al., Atmos. Chem. Phys. Discuss.,
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Review of "Heterogeneous ice nucleation ability of aerosol particles generated from Arctic sea surface microlayer and surface seawater samples at cirrus temperatures" By Wagner et al.

General comment:

In the present study the ice nucleation abilities of marine aerosol particles relevant to mixed-phase and cirrus clouds are presented based on previous observations and a new set of experiments. The results and the conclusions from the present study are a great contribution to the ice nucleation community as it helps us to improve the current understanding that marine aerosol particles play in cloud formation. This is a well designed and executed study where the authors paid a lot of attention to each experiment to properly interpret it. The manuscript is very well written with a sound discussion where the potential sources of uncertainties are highlighted and described. The manuscript can basically be accepted as is. However, below five minor comments are included to be considered in the final manuscript.

Minor comments:

Line 44: Add a reference after "235 K".

Line 119: What do the authors mean with "constant composition"?

Line 181: "In particular smaller, 200 nm-sized particles showed". This does not read properly.

Lines 442-444: Please double check if the sea surface microlayer samples during the ACCACIA expedition were indeed collected using a glass plate.

Table A1. I do not see the purpose of adding it to the manuscript.